

1. An ARC comprising:
a material substantially composed of $M_xSi_yN_z$, wherein:
M is at least one transition metal;
y is greater than x; and
z is in a range from about 0 to about 5y.
2. An ARC as defined in Claim 1, wherein M includes at least two transition metals of the configuration $M1_rM2_{1-r}$, wherein r is in a range from 0 to 1.
3. An ARC as defined in Claim 2, wherein M1 is tungsten and r is 1.
4. An ARC as defined in Claim 2, wherein M1 is tungsten, M2 is titanium, and r is about 0.5.
5. An ARC as defined in Claim 1, wherein M is tungsten, x is 1, and Si is in a range from about 1.5 to about 5.
6. An ARC as defined in Claim 1, wherein said ARC has a thickness range from about 25 Angstroms to about 1,000 Angstroms.
7. An ARC as defined in Claim 1, wherein said ARC has a thickness range from about 50 Angstroms to about 400 Angstroms.
8. An ARC as defined in Claim 1, wherein said ARC has a thickness range from about 85 Angstroms to about 200 Angstroms.

- 1 9. An ARC as defined in Claim 1, wherein y equals about $2x$.
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- 3 10. An ARC as defined in Claim 1, wherein y equals about $2.55x$.
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- 5 11. An ARC as defined in Claim 1, wherein y equals about $2.7x$.
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- 7 12. An ARC as defined in Claim 1, wherein M includes a combination of
- 8 $M_1M_2_{1-r}$, wherein r is in the range from 0 to 1, and wherein M_1 and M_2 are selected from
- 9 the group consisting of Sc, Ti, Zr, Nb, Ta, Mo, W, Co, and Ni and wherein M_1 is not M_2 .
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- 11 13. An ARC as defined in Claim 1, wherein z is in a range from about $1y$ to about
- 12 $2y$.
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- 14 14. An ARC as defined in Claim 1, further composed of hemispherical grained
- 15 polysilicon.
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- 17 15. An ARC as defined in Claim 1, wherein the material substantially composed
- 18 of $M_xSi_yN_z$ is a metal silicon nitride ternary compound.
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- 20 16. A semiconductor structure comprising:
- 21 a semiconductor substrate;
- 22 an ARC over the semiconductor substrate, said ARC being composed of a
- 23 metal silicon nitride ternary compound, wherein the metal is at least one metal
- 24 selected from the group consisting of Sc, Ti, Zr, Nb, Ta, Mo, W, Co, Al, and Ni.
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25. The semiconductor structure as defined in Claim 16, wherein:
the ARC is upon a formation that is selected from the group consisting of an
isolation trench, a contact corridor, a via, a stacked storage node well, and a wiring
trench.

26. A semiconductor structure comprising:
a semiconductor substrate;
an ARC upon said semiconductor substrate, said ARC being composed of a
metal silicon nitride ternary compound $M_xSi_yN_z$, wherein:
x is greater than zero;
y is greater than x;
z is greater than zero and less than about 5y;
M is at least two transition metals composed of $M_1M_{2,1-r}$;
r is in a range from 0 to 1;
M1 and M2 are selected from the group consisting of Sc, Ti, Zr, Nb,
Ta, Mo, W, Co, and Ni; and
M1 is not M2.

27. The semiconductor structure as defined in Claim 26, wherein said ARC has
a thickness range from about 25 Angstroms to about 1,000 Angstroms.

28. The semiconductor structure as defined in Claim 26, wherein said ARC is also
composed of hemispherical grained polysilicon.

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29. A semiconductor structure comprising:
an electrically insulative layer upon a semiconductor substrate;
a patterned electrically conductive metal line upon electrically insulative layer;
an ARC upon said electrically conductive metal line, said ARC being composed of a metal silicon nitride ternary compound $M_xSi_yN_z$, wherein:
x is greater than zero,
M is at least one transition metal selected from the group consisting of Sc, Ti, Zr, Nb, Ta, Mo, W, Co, Al, and Ni;
y is greater than x; and
z is greater than about 0 and less than about 5y.
30. The semiconductor structure as defined in Claim 29, wherein said ARC has a thickness range from about 25 Angstroms to about 1,000 Angstroms.
31. The semiconductor structure as defined in Claim 29, wherein said ARC is also composed of hemispherical grained polysilicon.
32. A semiconductor structure comprising:
a semiconductor substrate;
an ARC over the semiconductor substrate, said ARC being composed of a metal silicide binary compound, wherein the metal is at least one metal selected from the group consisting of Sc, Ti, Zr, Nb, Ta, Mo, W, Co, Al, and Ni.

39. The semiconductor structure as defined in Claim 32, wherein the ARC reflects incident light energy in a reflectivity that is in a range from 0 percent to about 30 percent.

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40. The semiconductor structure as defined in Claim 32, wherein:
the ARC is upon a formation that is selected from the group consisting of an
isolation trench, a contact corridor, a via, a stacked storage node well, and a wiring
trench.